

ENFORCER®

ST-BT03Q

12/24VDC Auto Sensing Multi Purpose Tester Manual



12/24
VDC

SIX
Tests

LED
Light

Continuity
Test with
LED
and/or
Buzzer

Performs the following tests:

Continuity • Voltage • Polarity
Load • Voltage Drop • PTC Fuse

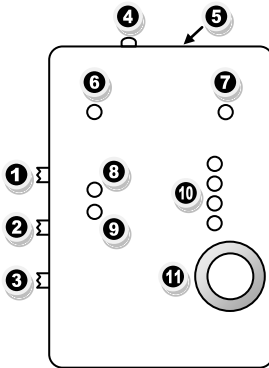
Features:

- Test 12VDC and 24VDC
- Perform 6 different tests
- Verify circuit continuity via:
 - LED
 - LED + Buzzer
- Auto-sensing 12VDC/24VDC
- Built-in LED light
- 4 selectable loads for simulating realistic test conditions
- Internal battery included

This tester is not intended for testing AC. Indication of AC voltage is for warning purposes only.

Overview:

- 1** LED Light switch
 - Turn LED light ON/OFF
- 2** Test Mode switch
 - Voltage Test
 - Continuity Test (LED)
 - Continuity Test (LED + Buzzer)
- 3** Load Selection¹ switch
 - 1.0A (for 12VDC)
 - 0.5A (for 12VDC)
 - 0.5A (for 24VDC)
 - 0.25A (for 24VDC)
- 4** LED Light
- 5** DC Jack
- 6** Polarity Indicator LED
 - Blue: Correct polarity
 - Red: Incorrect polarity
 - Purple: **Caution, AC voltage present**²



- 7** Power Indicator LED
 - Red: Testing 12VDC
 - Blue: Testing 24VDC
- 8** Test Done Indicator
 - Wait 30 seconds before next test
- 9** Continuity Indicator LED
 - When lit, circuit has continuity
- 10** Power Level
 - Red: Bad
 - Yellow: Weak
 - Green: Good
 - Blue: Excellent
 - See testing instructions for details.
- 11** Load Button
 - Select load via switch 3
 - Press to apply selected load

¹Test voltage before choosing load. Using loads for the incorrect voltage may result in incorrect readings.

²This tester is not intended for testing AC. Indication of AC voltage is for warning purposes only.

IMPORTANT NOTES:

1. Battery protector must be removed before use.
2. Do not perform continuity tests on live or powered circuits. Performing continuity tests on live or powered circuits may damage the tester.
3. The polarity indicator LED **6** will show purple to indicate AC power is present. Do not perform any tests when AC power is present.
4. The tester is intended to test 12VDC or 24VDC. Do not exceed 30VDC.
5. Load testing takes no longer than a few seconds. Significant heat is normal when load testing but pressing the load button for too long will cause the unit to overheat and shutdown.
6. When load testing, wait 30 seconds between tests to allow the unit to cool.
7. Always store the unit in Voltage Test mode **2** to prevent draining to battery.
8. The LED Light **4** is for providing temporary illumination. Extended use will quickly exhaust the batteries.

Specifications:

Operating voltage	12VDC and 24VDC (auto sensing)	
Simulated load	For 12VDC	0.5A@12VDC and 1.0A@12VDC
	For 24VDC	0.25A@24VDC and 0.5A@24VDC
Power	Continuity: 2x 3VDC button cell (CR2016) Other tests: Passive, no power required	
Weight	2.2-oz (62g)	
Dimensions	2 ⁹ / ₁₆ "x1 ¹⁵ / ₁₆ "x1 ¹ / ₈ " (65x49x29 mm)	

Test **1**

Continuity

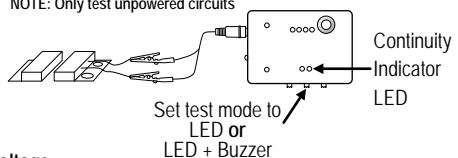
NOTE: Ensure the circuit is unpowered.

1. Set test mode to LED or LED + Buzzer.
2. Connect the alligator clips to the circuit being tested.
3. LED indicator will light and/or buzzer will sound if circuit is continuous.

IMPORTANT: 1. Remove battery protector before use.
2. When test done, reset test mode to Voltage.

Example Test Application

NOTE: Only test unpowered circuits



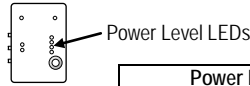
Test 2

Voltage with auto sensing

NOTE: Test 12/24VDC only.

Do not test VAC or >30VDC.

1. Set test mode to Voltage.
2. Connect the alligator clips to the wires or terminals of the device being tested.
3. Power level LEDs will indicate power as shown in the table on the right.



LED Color	Power LED Color	
	Red (12VDC)	Blue (24VDC)
Blue	12.0 ~ 16.4	≥ 24.5
Green	10.9 ~ 11.9	22.6 ~ 24.4
Yellow	10.2 ~ 10.8	21.0 ~ 22.5
Red	9.5 ~ 10.1	19.5 ~ 20.9
LED Off	≤ 9.4	16.5 ~ 19.4

Note:
All values
±5%

Test 3

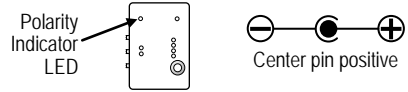
Polarity

1. Set test mode to Voltage.
2. Connect the alligator clips to the wires or terminals of the device being tested.

OR

Connect the 2.1mm DC plug of any 12 or 24VDC power source to the tester's 2.1mm DC jack directly.

3. The Polarity Indicator LED will show the polarity of the power present according to the table on the right.

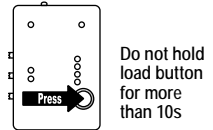
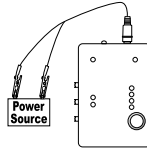
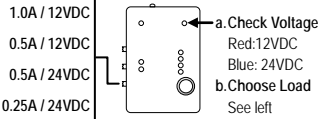


LED Color	Polarity
No color	No voltage present
Blue	Correct polarity
Red	Incorrect polarity
Purple	AC voltage present Do not test further

Test 4

Load

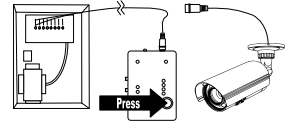
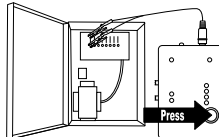
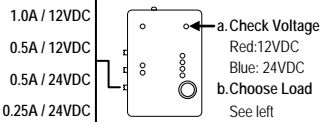
1. Set test mode to Voltage.
2. Check voltage and choose load.
3. Connect tester.
4. Press load button and read voltage according to the chart in Test 2.



Test 5

Voltage Drop

1. Set test mode to Voltage.
2. Check voltage and choose load.
3. Check voltage at source.
4. Check voltage at device.



5. Compare: The voltage drop is the difference between voltage at the power source and voltage at the device-end.

Test 6

PTC Fuse

1. Wait 30 seconds for tester and fuse to cool before/after performing tests.
2. Connect the alligator clips to the leads/terminals of the fuse being tested.
3. Choose a test load of the correct voltage and with amperage more than the current draw of the camera or other device to be connected.
4. Press and hold LOAD button for about 3 seconds.
5. Read fuse condition according to the table on the right.
6. If the fuse tests "Yellow/Weak" or "Red/Bad":
 - Test another fuse. If result is the same, load may be too much. Try a smaller load.
 - If test still yields "Weak" or "Bad," replace the fuse.

LED Color	Fuse Condition
Blue	Excellent
Green	Good
Yellow	Weak
Red/ All LEDs Off	Bad, replace fuse

Changing the battery (Use CR2016 3VDC battery x2):

1. Unscrew the rear panel.
2. Gently remove the circuit board starting from the end opposite the DC jack.
3. Note the orientation of the button cell batteries and remove them.
4. Replace the batteries with two fresh cells of the same type (CR2016), in the same orientation as before.
5. Carefully replace the circuit board in the housing, taking care that the LEDs align with the holes.

Troubleshooting:

Battery load test fails	<ul style="list-style-type: none">• Charge the battery fully for best results.• Replace battery being tested.
Voltage drop test fails	<ul style="list-style-type: none">• Use SECO-LARM ST-HB105-TTQ Voltage Booster to increase the voltage.• Reduce length of wiring.• Use a lower gauge wire.
PTC fuse test fails	<ul style="list-style-type: none">• Check PTC soldering to make sure it is correctly applied.• Replace PTC fuse.
Continuity test yields false negative	<ul style="list-style-type: none">• Change the internal battery. (Be sure to store tester in Voltage Test mode.)
Internal battery depletes quickly	<ul style="list-style-type: none">• Be sure to store tester in Voltage Test mode.• Avoid prolonged use of the LED Light.

Also Available from SECO-LARM:

6-in-1 12VDC Battery Tester
ST-BT02Q



Latching Continuity Tester
ST-BL01Q



Illuminated Power Connectors
CA-1610-3FLQ / CA-1510-3FLQ



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SECO-LARM® U.S.A., Inc.

16842 Millikan Avenue, Irvine, CA 92606
Tel: 800-662-0800 / 949-261-2999 Fax: 949-261-7326

Website: www.seco-larm.com
E-mail: sales@seco-larm.com

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